CLAIMS

What is claimed is:

1. A method, comprising:

converting an optical beam emitted by a laser into current proportional to a power in the optical beam using a first photodiode on a substrate, the first photodiode being illuminated by the optical beam;

evaluating a bandwidth of the substrate using a second photodiode on the substrate;

preventing the second photodiode from being illuminated by the optical beam;

extracting an amplitude for logic level "1" of the optical beam using a peak detector coupled to the first photodiode and compensating the amplitude for the logic level "1" in response to the evaluated bandwidth; and

adjusting laser modulation voltage in response to the compensated amplitude for the logic level "1".

2. The method of claim 1, further comprising adjusting optical signal alternating current (AC) components.

3. The method of claim 2, further comprising adjusting optical signal

extinction ratio based on the adjusted laser modulation voltage.

4. The method of claim 2, further comprising adjusting optical signal optical modulation amplitude based on the adjusted laser modulation voltage.

5. The method of claim 1, wherein extracting an amplitude for the logic level "1" comprises extracting an amplitude for the logic level "1" of the optical beam using a peak detector coupled to the first photodiode.

6. A method, comprising:

converting an optical beam emitted by a laser into current proportional to a power in optical beam using a first photodiode on a substrate, the first photodiode being illuminated by the optical beam;

extracting a direct current (DC) bias voltage level for the optical beam using the first photodiode;

deriving a temperature of the laser using a second photodiode on the substrate;

preventing the second photodiode from being illuminated by the optical beam;

adjusting the DC bias voltage level in response to the derived temperature; and

adjusting laser bias voltage in response to the adjusted DC bias

voltage level.

7. The method of claim 6, wherein deriving the temperature of the laser comprises correlating a threshold voltage for the second photodiode with a threshold current for the second photodiode.

8. The method of claim 7, wherein deriving the temperature of the laser comprises correlating a temperature of the second photodiode with the threshold current for the second photodiode.

9. The method of claim 6, further comprising adjusting optical signal average optical power based on the derived temperature.

10. An apparatus, comprising:

a laser;

a first photodiode on a substrate, the first photodiode being illuminated by an optical beam emitted by the laser;

a second photodiode on the substrate, the second photodiode being prevented from illumination by the optical beam; and

first circuitry coupled to the first photodiode to adjust alternating circuit (AC) components in the optical beam in response to variations in bandwidth of the second photodiode.

11. The apparatus of claim 10, wherein the first circuitry includes laser modulation circuitry coupled to adjust laser modulation voltage in response to variations in bandwidth of the second photodiode.

12. The apparatus of claim 11, wherein the first circuitry is further to adjust extinction ratio of the optical signal in response to variations in bandwidth of the second photodiode.

13. The apparatus of claim 10, wherein the first circuitry is further to adjust optical modulation amplitude of the optical signal in response to variations in bandwidth of the second photodiode.

14. An apparatus, comprising:

a laser;

a first photodiode on a substrate, the first photodiode being illuminated by an optical beam emitted by the laser;

a second photodiode on the substrate, the second photodiode being prevented from illumination by the optical beam; and

first circuitry coupled to the first photodiode to adjust direct circuit (DC) components in the optical beam in response to variations in temperature of the second photodiode.

15. The apparatus of claim 14, wherein the first circuitry includes laser bias circuitry coupled to adjust laser bias voltage in response to variations in temperature of the second photodiode.

16. The apparatus of claim 15, wherein the first circuitry is further to adjust average optical power of the optical signal in response to variations in temperature of the second photodiode.

17. A system, comprising:

a transponder having a laser to emit an optical beam, a substrate having a first photodiode and a second photodiode, the first photodiode being illuminated by the optical beam, the second photodiode being prevented from illumination by the optical beam, and first circuitry coupled to the first photodiode to adjust direct circuit (DC) components in the optical beam in response to variations in temperature of the second photodiode; and an erbium-doped fiber amplifier (EDFA) coupled to the transponder.

18. The system of claim 17, further comprising a multiplexer coupled to the EDFA.

19. The system of claim 18, further comprising an add-drop multiplexer coupled to the EDFA.

20. A system, comprising:

a transponder having a laser to emit an optical beam, a substrate having a first photodiode and a second photodiode, the first photodiode being illuminated by the optical beam, the second photodiode being prevented from illumination by the optical beam, and first circuitry coupled to the first photodiode to adjust alternating circuit (AC) components in the optical beam in response to variations in bandwidth of the second photodiode; and an erbium-doped fiber amplifier (EDFA) coupled to the transponder.

21. The system of claim 20, further comprising a multiplexer coupled to the EDFA.

22. The system of claim 21, further comprising an add-drop multiplexer coupled to the EDFA.

23. An article of manufacture article of manufacture, comprising:

a machine-accessible medium including data that, when accessed by a machine, cause the machine to perform the operations comprising, comprising:

converting an optical beam emitted by a laser into current proportional to a power in the optical beam using a first photodiode on a substrate, the first photodiode being illuminated by the optical beam;

evaluating a bandwidth of the substrate using a second photodiode on the substrate;

preventing the second photodiode from being illuminated by the optical beam;

extracting an amplitude for logic level "1" of the optical beam using a peak detector coupled to the first photodiode and compensating the amplitude for the logic level "1" in response to the evaluated bandwidth; and

adjusting laser modulation voltage in response to the compensated amplitude for the logic level "1".

24. The article of manufacture of claim 23, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising adjusting optical signal alternating current (AC) components.

25. The article of manufacture of claim 24, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising adjusting optical signal extinction ratio based on the adjusted laser modulation voltage.

26. The article of manufacture of claim 26, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising adjusting optical signal optical modulation amplitude based on the adjusted laser modulation voltage.

27. The article of manufacture of claim 23, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising extracting an amplitude for the logic level "1" of the optical beam using a peak detector coupled to the first photodiode.

28. An article of manufacture article of manufacture, comprising:

a machine-accessible medium including data that, when accessed by a machine, cause the machine to perform the operations comprising,

converting an optical beam emitted by a laser into current proportional to a power in optical beam using a first photodiode on a substrate, the first photodiode being illuminated by the optical beam; extracting a direct current (DC) bias voltage level for the optical beam using the first photodiode;

deriving a temperature of the laser using a second photodiode on the substrate;

preventing the second photodiode from being illuminated by the optical beam;

adjusting the DC bias voltage level in response to the derived

temperature; and

adjusting laser bias voltage in response to the adjusted DC bias voltage level.

29. The article of manufacture of claim 28, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising adjusting optical signal average optical power based on the derived temperature.

30. The article of manufacture of claim 29, wherein the machine-accessible medium further includes data that cause the machine to perform operations comprising correlating a threshold voltage for the second photodiode with a threshold current for the second photodiode.